


ACCELERATOR DIVISION ES&H PROCEDURE

ADSP-08-0202

REGULATED WASTE MANAGEMENT PROCEDURES

RESPONSIBLE DEPARTMENT ES&H

PREPARED BY  DATE 6-5-15
Sylvia Wilson, Environmental Officer &
Waste Coordinator

APPROVED BY  DATE 6/22/15
Sergei Nagaitsev, Division Head

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REVIEWED BY:  DATE 6/12/15
G. Lauten, Radiation Safety Officer

REVIEWED BY:  DATE 6-22-15
John Anderson, Head, ES&H Department

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1.0 PURPOSE AND SCOPE

The purpose of this document is to establish the Accelerator Division (AD) procedures for implementing the regulated waste management policies outlined in Chapter 8020 of the Fermilab Environment, Safety & Health (ES&H) Manual.

This document outlines the waste generators' and the Waste Coordinator's responsibilities and provides guidance on waste characterization. Procedures for waste collection, storage, labeling, and disposal, including completion of the Fermilab Waste Pickup Request Form and Radiological/ Controlled Area Survey and Certification Form, are also included. The procedure also discusses the methods used to ensure that regulated waste generated in AD does not leave the division with any unrecognized radioactivity.

This procedure applies to the management and disposal of all waste materials determined to be either hazardous or "special" wastes, recyclable wastes, and unknowns. It also includes guidance for determining whether radioactive materials are mixed wastes, and outlines the storage requirements for mixed waste awaiting pickup. Disposal procedures for mixed wastes are provided in ADSP-10-0201. This procedure does not apply to the collection and disposal of non-hazardous, radioactive wastes. ADSP-10-0201 also covers the disposal of non-hazardous, radioactive waste materials (e.g., radioactive oils, water, components, etc.).

2.0 DEFINITIONS

Controlled Area: Any area to which access is managed in order to protect individuals from exposure to radiation and/or radioactive material. All doors or other means of access to controlled areas in AD locations are posted with the appropriate signage.

Hazardous Waste: This is a regulatory term that is defined in the Code of Federal Regulations (CFR), Title 40, Part 261. It applies to waste that falls under strictly defined criteria described in detail in Section 4.1.1.

Mixed Waste: Any radioactive waste that is also a hazardous waste.

Radiological Area: Any area within a controlled area that must be posted as a "radiation area," "high radiation area," "very high radiation area," "contamination area," "high contamination area," or "airborne radioactivity area."

Resource Conservation and Recovery Act (RCRA): This Act directed the U.S. Environmental Protection Agency (EPA) to develop the regulations that define hazardous waste and the requirements for both hazardous waste generators and treatment, storage, and disposal facilities (TSDF).

Regulated Waste: A term for waste that means the waste cannot be disposed of as regular garbage/trash because government regulations (federal, state, or local) prohibit disposal in an ordinary sanitary landfill. Many of these wastes have been specifically identified by

various government agencies as hazardous to human health or the environment if managed or disposed of improperly. Regulated wastes include hazardous, special, universal, radioactive, and mixed wastes.

Satellite Accumulation Area (SAA): Area at or near the point of waste generation where generators are allowed to accumulate hazardous waste. Restrictions on this type of storage area are outlined in Section 5.1 of this procedure.

Special Waste: Waste that is prohibited from disposal as refuse because it is (or contains) liquid, is hazardous but can be recycled, contains polychlorinated biphenyls (PCBs) or asbestos (which have special disposal restrictions), or is otherwise regulated by the State of Illinois.

Toxic Substance Control Act (TSCA): Regulates the production and distribution of new chemicals and governs the manufacturing, processing, distribution, and use of existing chemicals. Among the chemicals controlled by this act are PCBs and asbestos.

Universal Waste: Certain wastes that are listed in Title 35, Illinois Administrative Code (IAC), Part 733 and subject to the requirements therein. These wastes, when managed according to the standards in Part 733, are exempt from otherwise applicable State of Illinois hazardous waste regulations until the waste reaches a "destination facility" where it is treated, recycled, reclaimed, or disposed of. Universal wastes include any mercury-containing equipment (e.g., lamps, switches, thermostats, thermometers, etc.) and some spent batteries (e.g., lead/acid, nickel-cadmium (NiCad), nickel-metal hydride (NiMH), mercury, lithium, and silver oxide).

Used Oil: Any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities.

Waste Characterization: The process of determining whether or not a waste is regulated. If the waste is hazardous, characterization also involves assigning the appropriate RCRA waste code(s).

Waste Coordinator: Person(s) appointed by the division head and trained by the ES&H Section to provide guidance and training to waste generators.

Waste Generator: The person involved in an activity or process that produces a regulated chemical waste. In cases where non-AD personnel generate regulated waste (during an activity conducted within or on behalf of AD), an AD representative may be designated as the waste generator or co-generator. This person is usually the area or task manager who is responsible for the area and activities performed within the area.

3.0 RESPONSIBILITIES

3.1 AD Waste Generators are responsible for:

- a. attending a Waste Generator's training course and must requalify biennially.
- b. characterizing, packaging, labeling, and storing of waste properly;
- c. managing their SAA properly and inspecting it regularly;
- d. seeking assistance from the division waste coordinator when needed;
- e. completing a "Chemical Waste Pickup Request Form" and submitting the form to the division waste coordinator for approval and to schedule waste pickup;
- f. Signing the "No Radioactivity Added Certification" section of the waste form prior to submitting the form to the waste coordinator for review and approval; and
- g. Planning/conducting work activities in such a manner that the amount of waste generated is kept to a minimum.

3.2 AD Task Managers, Area and Building Managers, and Waste Sponsors Supervising Non-AD Personnel

Contractor employees and non-AD personnel¹ are not generally trained regarding all requirements of this procedure. In lieu of formal training, the AD person who is the task manager, waste sponsor, or area/building manager will retain responsibility for:

- a. ensuring that the regulated waste is packaged, managed and disposed of according to Section 3.1 of this procedure, and
- b. as necessary, supplying persons under their supervision (including persons covered under footnote 1) with relevant information regarding the requirements of this procedure.

Note: With AD's agreement, other division/sections' waste management procedures will apply when their personnel generate waste in AD and assume responsibility for the functions listed in Section 3.1. When wastes are generated that are required, at least initially, to remain at or near the point of generation (i.e., hazardous or mixed wastes, see Paragraph 5.1.a), the AD building manager having responsibility for the location where the waste will be stored, as the person responsible for upkeep of AD facilities and on whose behalf such wastes are most directly generated, shall be considered to be the co-generator of the waste. In these

¹For purposes of this policy, personnel who are performing long-term jobs within AD and who are headquartered in AD (e.g., painters) are considered to be AD personnel and are subject to Section 3.1 of this procedure rather than Section 3.3.

circumstances, the other division/section personnel shall provide the appropriate AD building manager with a copy of the Waste Pickup Request Form and, if relevant, the Hazardous/Radioactive Mixed Waste Certification and Pickup Request Form.

3.3 The AD/ES&H Department Waste Coordinator will:

- a. assist waste generators, as necessary, with waste characterization, labeling, storage, packaging, and completion of the Waste Pickup Request Form;
- b. review the completed Waste Pickup Request;
- c. review the sampling results prior to submitting paperwork to the Fermilab ES&H Section;
- d. coordinate with the ES&H Section regarding normal and emergency waste pickups;
- e. inspect satellite accumulation areas quarterly;
- f. train waste generators on this procedure;
- g. look for waste minimization/pollution prevention opportunities;
- h. notify area managers, task managers, and/or building managers when waste has been generated in their respective areas by non-AD personnel and assist them with the completion of appropriate waste disposal paperwork; and
- j. revise this procedure, as appropriate.

4.0 WASTE CHARACTERIZATION INSTRUCTIONS

The following are categories of waste: hazardous, mixed, special, scrap metal, refuse, universal, used oil, and unknowns. Each of these waste types shall be accumulated, stored, labeled and disposed of according to the regulations that govern the respective waste category. Due to the many different waste storage and accumulation requirements, the first step in the waste management and disposal procedure is characterization. Some wastes, like process wastewater (generated from parts cleaning tanks, etc.) and spill cleanup materials, must be sampled and analyzed in order to determine their characteristics and to what degree they are regulated. Once characterized and if appropriate, process wastewater may be disposed of via sanitary sewer provided it has been approved by the Environmental Officer and it is in compliance with the lab's policy and procedures. See Fermilab ES&H Manual Chapter 8025, Wastewater Discharge to Sanitary Sewers for more details.

4.1 Waste Categories

4.1.1 Types of Hazardous Waste

A waste is not hazardous unless it fits the criteria described in 40 CFR Part 261 (summarized in this section). Each criteria has an

associated RCRA waste code (also known as EPA Hazardous Waste Number). Some wastes have more than one RCRA waste code because they fit more than one of the following criteria. The generator shall be familiar with the criteria that makes the waste hazardous.

Note: Waste material that is contaminated with a listed hazardous waste is usually considered to be hazardous waste (e.g., rags, wipes, cotton swabs contaminated with hazardous solvents).

4.1.1.1 Characteristic Hazardous Waste

A waste that exhibits one of the following four characteristics is a hazardous waste:

- a. **Ignitability:** Waste that has a flashpoint of less than 140°F is ignitable, hazardous waste. The RCRA waste code for ignitable waste is **D001**. Most oil-based paints, many solvents, and alcohols have flashpoints less than 140°F.
- b. **Corrosivity:** Waste that has a pH of less than or equal to 2 or greater than or equal to 12.5 is considered to be corrosive, hazardous waste. The RCRA waste code for corrosive waste is **D002**. Many cleaners (e.g., Copperbrite, bleach), solder fluxes, and acids have a pH that is less than 2.0 or greater than 12.5. Generators can use either pH paper or pH strips to determine a liquids pH. However, pH paper has a shelf life of no more than five years and must not be used if the shelf life has expired! PH strips, on the other hand, have no limit on shelf life. Also, neither pH strips nor pH paper should be stored in damp environments (e.g., a refrigerator). The pH paper and strips are available in several ranges, e.g., 6-9, 10-14, etc., which can be selected to enhance sensitivity. If measurement with pH strip or paper yields a marginal result, i.e., very close to 2.0 or 12.5, the measurement should be repeated with a calibrated pH meter. pH meters should be calibrated with the buffer solution closest to the pH being measured, i.e., pH 4 for measuring liquids close to 2.0 and pH 10 for measuring liquids close to 12.5. Using the wrong buffer can result in significant measurement errors. The meter manufacturer's instructions regarding conditioning of the probe must also be scrupulously followed.
- c. **Reactivity:** Waste that reacts violently with water or has the potential for explosion is considered to be reactive, hazardous waste. The RCRA waste code for reactive waste is **D003**. An example of a reactive, hazardous wastes would be lithium metal.
- d. **Toxicity:** Waste items that will leach high concentrations of various metals, organic chemicals, and/or pesticides if improperly disposed of are considered to be toxic, hazardous wastes. They are also called TCLP wastes (based on a test called the Toxicity Characteristic Leaching Procedure). The RCRA waste codes for the TCLP wastes range from **D004 through D043**. The waste codes are attached in Table 1, The TCLP List. Common examples of these wastes are listed in the following table:

HEAVY METAL	RCRA CODE	EXAMPLES
Barium	D005	Barium sulfate (usually found in paints)
Chromium	D007	Zinc chromate paint
Lead	D008	Non-recyclable lead contaminated materials (e.g., lead dust, personal protective clothing and equipment)
Mercury	D009	3M Silver Paper and spill cleanups from some broken devices. Does not apply to broken fluorescent lamps.
Silver	D011	Silver-containing paints and solders, but does not apply to silver-plated items

4.1.1.2 Listed Hazardous Waste

Waste items may also be characterized as hazardous wastes if they are so listed in the regulations. There are four types of "listed" wastes described below. See Table 3, "Proper Disposal of Contaminated Rags", for more details pertaining to the disposal of contaminated rags that contain a listed waste.

- a. **Hazardous wastes from non-specific sources:** Wastes from non-specific sources include solvents, thinners, and electroplating wastes. This group of wastes is often referred to as the F list and have RCRA waste codes F001 through F039. A complete list of F waste can be found in 40 CFR 261.31. The F-listed wastes commonly generated in AD are described below:

F001: Spent, halogenated solvents used in degreasing. Includes trichloroethylene, methylene chloride, carbon tetrachloride, 1,1,1-trichloroethane, and chlorinated fluorocarbons (CFCs) like Freon. Freon/oil mixtures are also F001 wastes. Rags that are contaminated with any of these solvents will always have a F001 waste code.

F002: Spent, halogenated solvents. Includes the above-listed solvents when they have been used for activities other than degreasing. Rags that are contaminated with any of these solvents will always have a F002 waste code.

F003: Spent, non-halogenated solvents. Includes ignitable solvents like xylene, acetone, n-butyl alcohol, and methanol. Rags that are contaminated with any of these solvents will always have a F003 waste code.

F005: Spent, non-halogenated solvents. Includes methyl ethyl ketone (MEK), toluene and isobutanol. Rags that are contaminated with any of these solvents will always have a F005 waste code.

- b. **Wastes from specific sources:** Wastes generated from specific manufacturing processes have RCRA waste codes K001 through K161 and are referred to as the K list. Fermilab does not generate any K-listed wastes.
- c. **Acute hazardous wastes:** This is a list of commercial chemical products considered to be acutely hazardous. These wastes are

referred to as the P-listed waste and have RCRA waste codes **P001 through P205**. A complete listing can be found in 40 CFR Part 261.33. These wastes have the "PXXX" waste code if they are unused or off-specification (expired, or otherwise unusable) portions of products or chemical spill cleanup debris. AD generation of P-listed wastes is rare. Past examples include beryllium powder, waste code P015, and sodium azide, a reagent used in certain PCB test kits, waste code P105. Containers that once stored these types of materials must also be disposed of through the ES&H Section's Waste Team as a hazardous waste.

- d. **Toxic wastes:** This is a list of commercial chemical products considered to be toxic. These wastes have RCRA waste codes **U001 through U411**, the U list. A complete listing can be found in 40 CFR Part 261.33. These chemicals have the "UXXX" waste code if they are unused or off-specification (expired or otherwise unusable) portions of products or chemical spill cleanup debris. Some U-listed chemicals that are generated in AD are listed below:

Chemical	Waste Code
Acetone	U002
Methylene chloride	U080
Methanol	U154
Mercury	U151
Toluene	U220
1,1,1-Trichloroethane	U226

4.1.2 Mixed Waste

In order to be considered mixed waste, the waste must be radioactive and fit the criteria for hazardous waste described above. Mixed waste shall carry the appropriate RCRA code(s) and also meet the requirements for radioactive waste described in the AD Radioactive Waste Disposal Procedure, ADSP-10-0201.

4.1.3 Special Waste

Special wastes do not fit the regulatory definition of hazardous waste; however, may require special handling, trained personnel, and/or special disposal methods. This is often due to the volume of waste, the concentration, and the physical, chemical, or biological characteristics associated with them. Most special wastes are liquids or materials that may be recycled. In addition, PCB and asbestos wastes are regulated under TSCA and are also considered as special wastes. Some Common examples of special waste are listed below.

PCB capacitors and ballasts (manufactured before July 1978)
 PCB-contaminated materials (absorbent, wipes, containers)
 Oil-filled ballasts
 Asbestos-containing material (insulation, floor tiles, gaskets)
 Naturally-occurring radioactive material (often found in blast media)
 Uncured epoxies
 Latex paints
 Glycol, glycol-filled materials and glycol-contaminated spill

cleanup materials

Note: Most types of asbestos removal projects require specialized qualifications. Personnel shall contact the AD/ES&H Department prior to conducting any activity that will generate asbestos-containing waste.

4.1.4 Unknowns

Wastes that cannot be identified are considered to be unknowns. Unknowns are usually liquids that have been abandoned and are missing identification labels. In most cases, the generator is unknown or gone from the lab and cannot be contacted. The person requesting disposal of such a waste will act as the waste generator. He/she may use the "Unknown Material Request Form" (Attachment 1) to gather information before contacting the waste coordinator for assistance. The waste generator must always complete a "Chemical Waste Pickup Request Form. The waste form must be submitted to the Waste Coordinator for approval and pickup.

4.1.5 Scrap Metal

Scrap metal includes non-radioactive, recyclable copper, steel, lead, beryllium-copper, empty non-aerosol metal paint cans and lid, electronic ballast, electrolytic capacitors, printed circuit boards, soldered plumbing joints, and solder. All equipment and parts must be liquid free. TCLP sampling indicates that selenium-coated parts can also be safely recycled as scrap metal.

4.1.6 Refuse

This is regular garbage or shop trash that does not have hazardous characteristics or disposal restrictions. Refuse is to be disposed of in dumpsters. Empty chemical containers and carboys (five gallons or less) that did not contain a P-Listed waste or PCBs are considered to be refuse.

There shall be no liquid remaining in the containers. Containers shall be made unusable by means of removing the caps and/or cutting the container in half, if possible. Small quantities (less than one cubic foot) of non-contaminated (i.e., non-radioactive or non-PCB) oil- or glycol-saturated (not dripping) rags or oil-dry are also considered to be refuse. Set, reacted, two-part epoxies may be disposed of as refuse. Refer to Table 2, Materials Prohibited From Disposal in Dumpsters, for items which are not considered to be refuse.

Keep dangerous non-contaminated sharps (e.g., razor blades, exacto knives, etc.) out of the regular trash. Sharps shall be collected in containers that are puncture resistance and capped prior to disposal. Containers are available from the Waste Coordinator.

4.1.7 Universal Waste

Certain hazardous wastes have been classified as universal waste. Those commonly generated in AD include mercury lamps (i.e.

fluorescent lamps, mercury devices, and batteries, that potentially contain mercury in amounts that would exceed the RCRA toxicity characteristic limit. When these items are recycled, they are not managed as hazardous waste. The following list includes universal waste that are typically found in AD locations:

- Batteries - lead-acid, lithium, mercury, nickel-cadmium, nickel-metal hydride, silver oxide;
- Mercury containing devices - thermostats, relay switches, thermometers, barometers;
- Fluorescent lamps, high intensity lamps and compact fluorescent lamps.

Note: Items that become activated cannot be recycled and must be disposed of as mixed waste.

4.1.8 Used Oil

Used oil was once considered Illinois Special Waste, but now has its own set of management standards. The original product may have been either natural (i.e., refined from crude oil) or synthetic oil. Used oil containing more than 1,000 ppm total halogens is presumed to have been mixed with halogenated hazardous waste and is therefore itself a hazardous waste by virtue of the mixture rule. Special costly sampling is required to rebut this presumption, so cross-contamination with any halogenated material, even if it is not a hazardous waste (e.g., Freon), should be avoided. The rebuttable presumption does not apply to certain metalworking oils and fluids and certain used oils removed from refrigeration units (see 35 IAC 739.110(b)(B)).

4.1.8.1 Used Oil Filters

Used oil filters that have a metal exterior and are paper, packed bed, wound or similar interiors and are used in machines or vehicles shall be collected as "non-regulated waste. The waste container for the filters shall be labeled with a "Non-RCRA Regulated Waste" sticker and should have a secured lid.

4.2 Waste Characterization Tools

Properly characterizing waste can be difficult, especially if personnel only generate waste once every few months. In recognition of this, several tools are available which may simplify the process.

4.2.1 Safety Data Sheets (SDSs) formerly MSDS

SDSs provide helpful information on the hazardous constituents and properties of chemical products. Most SDSs have a waste disposal section that may provide waste instructions for the disposal of the product, including applicable waste codes. However, most sheets only say, "Dispose of in accordance with all applicable laws." In all cases, this procedure shall be used for the disposal of regulated material. SDSs are also available from the AD/ES&H office and the following ESH&Q Section's website address:

http://www-esh.fnal.gov/pls/default/msds_search.html

a. Hazardous Ingredients Section:

If acids are listed, the pH of the material shall be checked. In addition, Table 1 of this procedure shall be checked for concentrations of TCLP contaminants in excess of those listed (e.g., high concentrations of lead (D008) and silver (D011) would also make the waste hazardous).

b. Physical/Chemical Characteristics:

Ignitability: If the SDS indicates that the flashpoint is less than 140°F, the material is a hazardous waste and the waste code is D001.

Corrosivity: If a pH is listed and is less than or equal to 2 or greater than or equal to 12.5, the waste is corrosive and the waste code is D002. The pH on liquid wastes shall be confirmed per 4.1.1.1.b.

Reactivity: This section of the SDS provides information pertaining to chemical instability of a product and how the product may react with other substances. The waste code of reactive waste is D003.

4.2.2 Waste Characterization List

Table 3 of this procedure lists many different types of wastes commonly generated in AD. It may help in determining the correct waste category.

4.2.3 AD Waste Coordinator

The AD Waste Coordinator will assist generators with waste characterization. Wastes that require sampling (e.g., industrial process wastewaters) will initially be characterized by the Waste Coordinator. In most cases, subsequent batches of the waste can then be characterized according to the sampling results.

5.0 WASTE STORAGE, ACCUMULATION, AND LABELING INSTRUCTIONS

Waste shall be properly characterized to ensure compliance with applicable storage, accumulation, and labeling restrictions. Once waste has been characterized, generators shall follow ESH&Q Section.

5.1 Hazardous Waste

Strict storage and accumulation requirements apply to hazardous waste. Many of these requirements are federal law (from RCRA); some of them are Fermilab-imposed restrictions. Hazardous waste shall be collected in a satellite accumulation area. The SAA requirements are:

- a. Waste shall be collected at or near the point of generation. Hazardous waste that is generated in a beam enclosure cannot be left there because it could become activated, resulting in mixed waste, for which disposal facilities are often unavailable. Therefore, for such wastes, the point of generation shall be considered to be the location where the waste is brought out of the enclosure.
- b. A hazardous waste label shall be affixed to each container at the time waste accumulation begins. Hazardous waste containers (including mixed waste and hazardous waste rags) shall be labeled with the red and white waste labels.² Information to be provided on the labels includes waste description, generator name, satellite accumulation area, and SDS #. Information shall be written with a permanent ink marker. Labels on drums shall be placed on the side of the drum near the top. There is a labeling exemption that applies to small product containers, usually less than one-gallon (e.g., aerosol spray paint cans, flux strippers, and pint-size paint cans). Labels on these containers would cover up the manufacturer's label. Therefore, small containers shall be placed in a box or bag that has the completed label affixed to it.
- c. The generator shall maintain control over the hazardous waste. Keeping waste in a locked area is the best control measure.
- d. Waste shall be collected in a compatible container, preferably the original manufacturer's container if possible. Non-contaminated five gallon carboys can be obtained from the waste coordinator for used oil and glycol. Drums and other containers can also be obtained from the Waste Coordinator.
- e. Waste containers shall remain closed except when adding or removing waste.
- f. Unlike materials shall never be mixed or combined. The one exception to this requirement is the accumulation of hazardous waste rags. See Section 5.1.1 for collection instructions.
- g. Containers shall be protected from the weather. Drum covers can be obtained from the Waste Coordinator
- h. Containers shall be stored inside containment capable of collecting any foreseeable spills or leaks. Small and medium size secondary containment units are available from the Waste Coordinator. Flammable safety cabinets shall be used for flammable waste; however, waste shall be clearly segregated from product (e.g., labeled, in a compatible secondary containment or on a shelf designated for waste).
- i. Regulated waste should be labeled immediately. This will reduce the probability of a chemical being mishandled or becoming an unknown.

²Reusable labels shall be used to identify containers of liquids or materials that are reusable. These labels are available through the Waste Coordinator.

- j. The total volume of liquid waste at a SAA shall not exceed 55 gallons of hazardous waste or 1 quart of acutely hazardous waste for longer than three days. If such excess occurs, the generator shall mark the date the excess amount began accumulating in the "accumulation start date" field on the labels of the container(s) holding the excess.³ In the event that a planned operation will produce enough waste to cause the total at a satellite accumulation area to exceed 55 gallons, the Waste Coordinator must be contacted before the operation is carried out so that special arrangements can be made to sample and remove the waste promptly.
- k. Used oil is usually generated from various sources such as vacuum pumps, compressors, motors, transformers, etc. RCRA regulations state that waste oil containing >1000 ppm total halogens is a hazardous waste. Due to storage limitations for hazardous waste at SAAs, the Waste Coordinator shall, upon notification from the waste generator, conduct a halogen screening test on all containers of oil at a SAA where the total volume equals 55 gallons or more. Waste generators shall notify the Waste Coordinator as soon as this volume is reached and shall not exceed this volume at anytime. All transformer oils are screened for halogens regardless of their volume.

In addition, hazardous waste shall not be stored where there is the potential for contaminating radioactive materials or becoming

5.1.1 Solvent-Laden Rags

Hazardous waste rags shall be managed in accordance with the satellite accumulation area restrictions outlined above. In addition, the following requirements apply:

- a. Rags shall be collected in a closed, fire-resistant container that is lined with a plastic bag. Waste collection receptacles are available from AD/ES&H.
- b. Hazardous waste stickers shall be affixed to both the collection can and the plastic bag liner inside the container.
- c. Hazardous waste rags may be collected in one container, however, the waste description on the label shall identify **all** solvents contained on the rags.
- d. The label affixed to the outer container shall read, "See inner label affixed to bag liner" or something to that effect.
- e. Whenever the generator begins accumulation of waste rags, a new bag liner shall be placed inside of the container. The liner shall be labeled with a completed hazardous waste sticker.

³For reusable materials such as corrosive metal cleaners, the volume in storage would not count against the 55-gal/1 qt limit until it becomes too contaminated to be used further, i.e., waste.

Rags contaminated only with oil are **not** hazardous waste. Rags contaminated with the common alcohols (i.e., ethanol, isopropanol, methanol) are hazardous waste. See Table 4.

5.1.2 Mixed Waste

Due to its hazardous characteristic(s), mixed waste shall be labeled and stored according to both the SAA restrictions outlined in Section 5.1 and the requirements of the AD Radioactive Waste Disposal Procedure, ADSP-10-0201. To avoid possible cross-contamination, mixed waste shall be stored separately from other hazardous, special or non-hazardous, radioactive wastes.

5.2 Special Waste

Special waste containers shall be labeled with the black and white special waste label at the time waste accumulation begins. With the exception of PCBs, there is no time limit on storage of special waste; however, containers should be marked with the accumulation start date, and it is suggested that waste be disposed of in a timely manner.

- a. Special wastes shall not be stored with radioactive wastes or in areas where there is potential for hazardous waste contamination.
- b. Waste containers shall remain closed except when adding or removing waste.
- c. Containers shall be protected from the weather.

Waste-specific storage requirements are listed in the following sections.

5.2.1 PCB-Containing Items

This includes PCB fluorescent light ballasts, small PCB capacitors, and PCB-contaminated items. PCB-containing items shall be labeled with both the "Caution Contains PCBs" and a special waste label. PCB items entering the waste stream must have an out-of-service date recorded on the special waste label. PCB waste may be stored at a satellite accumulation area for no longer than 30 days, so waste pickup forms must be submitted promptly when this type of waste is generated. A satellite accumulation area being used for storage of PCB items must be labeled with the large PCB mark M_L. See ADSP-08-0401 for more detail on management of PCBs.

5.2.2 Asbestos-Containing Items

Waste containing asbestos must be double-bagged or double-wrapped in polyethylene sheeting before the ESH&Q Section's Waste Management Team will pick it up. A "Danger Contains Asbestos Fibers" label shall be affixed to the container in addition to the special waste label. Any work involving the removal or disturbance of ACM must be coordinated through the ESH&Q Section.

5.2.3 Oil-Absorbed Solids

Small quantities (rule of thumb: no more than 1 ft³/dumpster) of oil-absorbed solids shall be collected and disposed of as trash provided no free liquid remains. Large quantities of oil-absorbed solids and oil-spill cleanup debris must be containerized, labeled, and disposed of as special waste.

5.3 Empty Drums

EPA defines an empty drum as a container that no longer contains a liquid or solid material which can be removed by conventional means, i.e., pouring, pumping, aspirating. Empty metal drums and metal containers ≥ 5 gallons must be labeled with an "Empty" sticker. The waste generator must also complete a Chemical Waste Pickup Request Form to have the empty drum disposed of as a "non-regulated" waste.

5.4 Scrap Lead⁴

Lead shall not be added to scrap metal bins unless it is clearly labeled as lead. Hand-written labels are sufficient. Lead that cannot be recycled is hazardous waste. Radioactive lead is characterized as a mixed waste.

Note: Do not throw small, loose lead pieces into scrap bins. Small pieces must be collected in a secured labeled container or zip-lock bag and then put inside of scrap barrels. To recycle large quantities of non-radioactive lead, the waste generator will have to complete a "Material Move Request Form."

5.5 Printed Circuit Boards

Printed circuit boards generally contain lead (in solder) and may also contain other toxic metals. The EPA has concluded that printed circuit boards meet the definition of "scrap metal" and therefore are not hazardous waste when recycled.

Equipment containing printed circuit boards or loose circuit boards may be placed into the scrap metal barrels located around the division, provided they are not radioactive. Under no circumstances may electronic equipment containing printed circuit boards or loose circuit boards be disposed of in dumpsters with ordinary trash. The circuit boards must be recycled in order to be excluded from RCRA regulation.

It is important to note that printed circuit boards that are not recycled are regulated hazardous waste. Therefore, radioactively contaminated circuit boards, which cannot be recycled, are mixed waste and shall be managed according to the applicable portions of this procedure. Because mixed waste is the most expensive type of waste to dispose of, printed circuit boards in activated or contaminated equipment shall be removed from the equipment to allow separate disposal of the hazardous and non-hazardous components.

⁴ Note: This section does not apply to items with lead-containing solder.

5.6 Unknowns

If an unknown is found to be or is suspected of being hazardous waste (e.g., pH is less than or equal to 2), the unknown shall be labeled and stored as an "unknown" hazardous waste (see Section 5.1).

5.7 Universal Waste

Generators must manage all universal waste in a way that prevents releases of any universal waste or component of a universal waste to the environment. Universal waste items that show evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions (e.g., broken lamps and residues, leaking batteries, and thermostats with broken mercury ampules) must be placed in a closed, structurally sound, compatible container. Notify the ES&H Department regarding any spills. Inadvertent breakage of fluorescent lamps and high intensity discharge lamps occasionally occurs during handling. If this happens, all broken fragments must be collected and treated in the same manner as an intact lamp.

Specialized labels are available for the various types of universal waste. There is a one-year clock on accumulation of universal waste, so the labels must be dated.

No universal waste may be placed in dumpsters or otherwise disposed of except through the ESH&Q Section's HCTT, which arranges for shipment to an appropriate recycling, treatment, or disposal facility. Generators must arrange for disposal of universal waste by submitting a completed Waste Pickup Request Form to the Waste Coordinator.

Containers containing spent lamps shall be marked or labeled with a "Universal Waste Mercury-Containing Lamp(s)" sticker. Most spent lamps are removed from service by Facilities Engineering Services Section (FESS) personnel, who will transport them to a central location and store them until a large enough quantity is accumulated to warrant recycling. Accelerator Division employees who generate mercury-containing lamps shall handle and store them in a manner designed to minimize breakage while awaiting pickup. The original shipping box or container is the preferred package for spent lamps; however, poly sleeves or other containers can be used.

Other mercury containing devices (e.g., thermostats, switches, thermometers) must be labeled with a "Universal Waste Mercury Containing Equipment" sticker. Mercury-containing devices shall be handled carefully to prevent breakage or damage to the mercury ampule inside of the device. If a device shows evidence of leakage, contact the ES&H Department immediately. One label can be used for multiple devices provided each device is protected against breakage and is stored in a labeled and secured container.

A used battery that contains a hazardous metal (i.e., cadmium, lead, lithium, mercury or silver) is classified as universal waste rather than hazardous waste. The battery must be labeled with a "Universal Waste Battery(ies)" sticker. One label can be used for

multiple batteries or bulbs as long as they are grouped together using a Ziplock baggy, poly sleeve, box, or batteries can be placed on a skid, provided they are secured together. The terminal of each wet cell battery (e.g., large emergency light or golf cart batteries) shall be covered with a non-conductive tape to prevent possible short circuiting. Also, secondary containment should be provided for wet cell batteries while awaiting pickup.

A leaky lead acid battery shall be characterized as a hazardous waste and containerized in a secured, labeled container.

5.8 Used Oil

"Used Oil" labels shall be used for oils containing greater than 95% synthetic or petroleum-based oils. Generators must complete the label (including the date) at the time waste accumulation begins. All transformer oils and volumes greater than five gallons of petroleum-based used oils must be tested for halogen content, by the Waste Coordinator, prior to the waste generator submitting the Waste Pickup Request Form. Test are usually performed by the Waste Coordinator.

Never place used oil in a container that previously held Freon or halogenated solvents. Do not use a funnel that was once used to pour Freon or halogenated solvents. This will contaminate the oil, and the oil cannot be recycled.

5.9 Alkaline and Carbon-Zinc Batteries

Alkaline and carbon zinc batteries are recyclable. Employees are responsible for segregating them from their universal waste batteries. Non-radioactive spent alkaline batteries can be placed into a labeled container for alkaline batteries. They can also be put into the recycling "alkaline" bin that is located in the X/Gallery Hi-Bay area. The terminals on all 9-volt alkaline batteries must be taped with electrical tape before placing them into recycling containers.

5.10 Aerosols

Aerosol cans that are full, partially full or containing residual product and meet the definition of hazardous waste will need to be discarded as hazardous. A discarded aerosol can is hazardous waste if the can and its contents exhibit a hazardous waste characteristic or if it is a listed hazardous waste. In addition, an empty aerosol can which is not completely depressurized is usually regulated as a reactive characteristic hazardous waste. Only an approved aerosol can puncturing device that has been approved by the ES&H Department can be used to completely empty aerosol cans and make them non-hazardous, non-reactive. Contact the waste coordinator for assistance.

All depleted aerosol cans that once contained an ignitable liquid or propellant must be disposed of as hazardous waste. The waste generator must complete a Chemical Waste Pickup Request Form.

Empty aerosol paint or pesticide containers only can be recycled. The waste generator can either place them into the labeled containers that are located outside of the Cross Gallery Hi-Bay area or complete a Chemical Waste Pickup Request Form to have them picked up. See Table 3.

Empty aerosol duster cans e.g., "Techspray Duster" shall be discarded as regular trash.

6.0 WASTE DISPOSAL INSTRUCTIONS

The Fermilab ESH&Q Section is responsible for removing hazardous and special wastes from AD sites. Before ESH&Q Section personnel will pick up waste, they require, at a minimum, a completed Chemical Waste Pickup Request Form. Requests for pickup of empty drums shall also be submitted on this form. The waste generator is responsible for having the "No Radioactivity Added Certification" section of the Chemical Waste Pickup Request Form signed. All completed forms must be submitted to the Waste Coordinator for review and approval.

6.1 Waste Pickup Request Form

Instructions for completing the form are on the back of the sheet. The waste generator is responsible for completing the form (with the Waste Coordinator's assistance, if necessary). The form shall be completed immediately after accumulation is complete (e.g., when the container has reached its capacity or holding time limit, or when a product has been determined to be unusable). Tips on correctly completing the forms are as follows:

- a. Two-part epoxies shall be listed separately, item one being Part A and item two being Part B. The two parts shall be written separately, due to the fact that they are different products that contain different constituents.
- b. Regardless of whether the waste is special or hazardous, if a pH is taken, the result shall be indicated in the space provided.
- c. If the waste is a leftover/unused portion of a commercial chemical product, the generating process and waste constituent percentages sections shall be left blank.
- d. If the generator cannot sign the "No Radioactivity Added Certification," section of the form then he/she shall contact the AD/Radiation Safety Group for assistance.

6.2 Mixed Waste

Mixed waste shall be disposed of in accordance with the AD Radioactive Waste Disposal Procedure, ADSP-10-0201. Contact AD Radiation Safety Group at X4461, for forms and other related radiological issues.

7.0 WASTE MINIMIZATION AND POLLUTION PREVENTION

Waste minimization focuses on reducing waste streams, especially those that are hazardous. This can be accomplished by reducing the volume or toxicity of the waste or recycling. Pollution prevention focuses on evaluating methods to reduce or eliminate all pollution sources. Sources of pollution include air emissions, water discharges, as well as solid waste generation. The most recent environmental policies and regulations place great emphasis on waste minimization and pollution prevention.

The following waste minimization and pollution prevention methods are to be implemented in AD:

- a. Prior to ordering a new material, contact the waste coordinator to see if the material is already available in the division.
- b. When ordering supplies, try to substitute less-toxic or non-hazardous products for currently used hazardous materials.
- c. When experimenting with new materials that will have to be disposed of as hazardous waste, order the smallest available quantity.
- d. Purchase commercial chemical products (including paints, solder fluxes, etc.) in quantities and sizes that can be easily used before the shelf-life of the material expires.
- e. Manage commercial chemical products in such a manner that the product will be usable for the duration of its expected shelf-life. This includes practices like making sure caps are tight, cleaning jar edges so lids do not become stuck, and using spray cans so that the nozzle does not become clogged (see instructions on the can).
- f. Label all waste and transferable product containers to reduce the potential for generation of an unknown waste or mixture.
- g. Manage the accumulation of special wastes in such a manner that they cannot mix with or become contaminated with hazardous waste and thereby become a hazardous waste. For example, the funnel used to add hazardous solvents to a drum shall not be used to add special waste, like oil, to another drum.
- h. Always segregate your radioactive waste from hazardous and non-hazardous waste to prevent cross-contamination and the potential to create a mixed waste.
- g. Completely use the contents of open containers of commercial chemical products before opening a new container of the same product. As stated earlier, empty product containers may be disposed of as refuse.
- h. If a product is no longer useful in one area, before disposing of it as waste, make a concerted effort to find other personnel who may be able to use the product. The Waste Coordinator may

be able to assist in identifying potential users for the surplus.

8.0 REFERENCES

- 8.1 Resource Conservation and Recovery Act (RCRA) of 1976, as amended, Title 42 United States Code (U.S.C.) 6901 *et seq.*
- 8.2 Title 40 CFR Parts 260-268, 270-273, and 279-282, federal hazardous waste regulations
- 8.3 Title 35 Illinois Administrative Code (IAC) Parts 700, 702-705, 709, 720-725, and 729-731, state hazardous waste regulations
- 8.4 Toxic Substances Control Act, as amended, Title 15 U.S.C. 2601 *et seq.*
- 8.5 Title 40 CFR Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

9.0 DISTRIBUTION

- 9.1 An electronic controlled copy of this procedure is maintained at <http://ad-esh.fnal.gov/ad/adsp/ADSP-08-0202.pdf>
- 9.2 The Main Control Room and the AD ES&H Department have controlled hardcopies of this procedure.



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ACCELERATOR DIVISION ES&H

UNKNOWN MATERIAL REQUEST FORM

This form shall be used when process knowledge and other resources are not readily available to adequately characterize an unwanted, unknown material as a waste. This form must be accompanied by the "Chemical Waste Pickup Request Form" and any other applicable waste form. Be very careful when handling bulging, corroded, or badly damaged containers. Never tamper with a container of amber color, that appears to contain a peroxide or other reactive chemical. Contact the Waste Coordinator at extension 4489 or the AD ES&H Department immediately for assistance.

Requestor: _____ Phone #: _____

Location of Material (Bldg/Room/Cabinet #) _____

Description of Container (size) _____ (type) _____

1. General Description of the Material (aqueous, color, pH)

- a) circle one: solid/ liquid/ oil/ multi-phase (describe)
- b) describe the material color:
- c) describe the material texture:
- d) Document pH, only if it can be easily obtained.
- e) Is there a distinct odor? Note: If the smell is not very obvious, then do not sniff the material!
- f) Does the waste resemble another product normally used in the area that the unknown was found?

2. Personnel Survey: Describe the actions that you have taken to identify the waste (e.g., discussions with building and area managers, co-workers and contractors in the work area)

TABLE 1 - THE TCLP LIST

RCRA NUMBER	METALS	MAX. CONC. (mg/L)
D004	Arsenic	5.00
D005	Barium	100.00
D006	Cadmium	1.00
D007	Chromium	5.00
D008	Lead	5.00
D009	Mercury	0.20
D010	Selenium	1.00
D011	Silver	5.00
HERBICIDES/PESTICIDES		
D012	Endrin	0.02
D013	Lindane	0.40
D014	Methoxychlor	10.00
D015	Toxaphene	0.50
D016	2,4-D	10.00
D017	2,4,5-TP (Silvex)	1.00
D020	Chlordane	0.03
D031	Heptachlor (and its epoxide)	0.008
TCLP ORGANICS		
D018	Benzene	0.50
D019	Carbon Tetrachloride	0.50
D021	Chlorobenzene	100.00
D022	Chloroform	6.00
D023	o-Cresol	200.00
D024	m-Cresol	200.00
D025	p-Cresol	200.00
D026	Cresol	200.00
D027	1,4-Dichlorobenzene	7.50
D028	1,2-Dichloroethane	0.50
D029	1,1-Dichloroethylene	0.70
D030	2,4-Dinitrotoluene	0.130
D032	Hexachlorobenzene	0.13
D033	Hexachlorobutadiene	0.50
D034	Hexachloroethane	3.00
D035	Methyl Ethyl Ketone	200.00
D036	Nitrobenzene	2.00
D037	Pentachlorophenol	100.00
D038	Pyridine	5.00
D039	Tetrachloroethylene	0.70
D040	Trichloroethylene	0.50
D041	2,4,5-Trichlorophenol	400.00
D042	2,4,6-Trichlorophenol	2.00
D043	Vinyl Chloride	0.20

TABLE 2 - MATERIALS PROHIBITED FROM DISPOSAL IN DUMPSTERS/TRASH RECEPTACLES

All Chemicals:	This includes all solvents, all petroleum based paints, all liquid latex paints, adhesives, sealants, toxic metals, oil, antifreeze, pesticides, herbicides, solder fluxes, unreacted epoxies, acids, etc.
Empty Aerosol Cans	Empty aerosol cans that contain an ignitable liquid or propellant, or that are not fully depressurized are regulated as a reactive characteristic hazardous waste. See section 5.10, Aerosols for more details or contact the waste coordinator for assistance.
All industrial liquids or liquid-containing items:	This includes many capacitors, oil or chemical filled ballasts, all oil-filled filters, cutting fluids, industrial process wastewater
Toxic metals or items contaminated with toxic metals:	<ul style="list-style-type: none"> • Unwanted unusable and contaminated lead or lead items shall be recycled and labeled "lead"; • Unwanted beryllium items shall be disposed of as "special waste." • Other toxic metals or contaminated toxic metals shall be disposed of as hazardous waste.
Universal waste:	<ul style="list-style-type: none"> • Fluorescent lamps and other lamps that contain mercury (e.g., high intensity discharge (HID)); • Batteries containing lithium, lead, silver, nickel-cadmium, nickel-metal hydride, and mercury. • Other mercury containing devices (e.g., barometers, thermostats, thermometers, relay switches, etc.)
Alkaline and Carbon-Zinc batteries	Alkaline and Carbon-Zinc batteries are recyclable. Contact the Waste Coordinator at X4489 for guidance.
Asbestos:	Asbestos-containing materials (ACM) must be disposed of as special waste. Any work involving the removal or disturbance of ACM shall be prior approved and managed through the ESH&Q Section.
Radiation signs & labels:	Contact Radiation Safety for disposal (X4461).
Radioactive materials:	Contact Radiation Safety for disposal (X4461). Note: <u>Naturally-occurring radioactive materials</u> (e.g., grit blast media) <u>shall be discussed with the Radiation Safety Group (X4461) prior to any disposal</u> of this type of waste.
Scrap metal and old equipment (includes electronic equipment and components:	Metal, electronic components (e.g., printed circuit boards, wires), electrolytic ballasts, solder, empty open top paint cans + lid should be recycled. Scrap metal drums are provided at various locations throughout the Division.
Large quantities of oil (i.e., non PCB) or ethylene glycol spill cleanup debris:	A large quantity is considered to be greater than one, thirty-gallon garbage bag. Large quantities of cleanup debris shall be disposed of as special waste.
Used Oil Filters	Used oil filters shall be disposed of as non-regulated waste. Contact the AD Waste Coordinator for assistance.
Wooden Pallets	Contact X4225 for disposal of multiple pallets (i.e., more than one). A single pallet can be disposed of via twenty ft ³ yard dumpster.

TABLE 3 - WASTE CHARACTERIZATION LIST

WASTE	CATEGORY	WASTE CODE
LEAD ITEMS		
LEAD PIECES (e.g., solder and soldered parts)	If recycled, SCRAP; otherwise HAZARDOUS	NONE, if recycled, otherwise D008
LEAD-CONTAMINATED ITEMS (e.g., wipes or rags, PPE)	HAZARDOUS	D008
PRINTED CIRCUIT BOARDS	IF RECYCLED, SCRAP; OTHERWISE HAZARDOUS	NONE, if recycled, otherwise D008
RADIOACTIVE, LEAD-SOLDERED PARTS	MIXED	D008
SILVER ITEMS		
SILVER-CONTAINING PAINTS	HAZARDOUS	D011
SILVER SOLDER PASTE	HAZARDOUS	D011
SILVER-PLATED ITEMS	SCRAP	NONE
SOLVENTS		
MINERAL SPIRITS, ETHANOL, ISOPROPANOL	HAZARDOUS	D001
TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, OR FREON	HAZARDOUS	Degreasing F001; Non-Degreasing F002
XYLENE, ACETONE, METHANOL	HAZARDOUS	F003
TOLUENE, METHYL ETHYL KETONE, ISOBUTANOL	HAZARDOUS	F005
USED FREON	HAZARDOUS	F002
OIL/FREON MIXTURES	HAZARDOUS	F002
BIODEGRADABLE SOLVENTS AND WATER MIXTURES	Check if eligible for sanitary discharge	NONE
USED KPC820N, CITRANOX, ALCONOX, MICRO 90 OR MICRO, AND SIMPLE GREEN	SPECIAL or check with waste coordinator regarding eligibility for sanitary discharge	NONE
NON-BIODEGRADABLE CLEANERS	SPECIAL	NONE
OILS		
USED OIL	USED OIL	NONE
PCB OIL	SPECIAL	NONE
OIL-FILLED CAPACITORS	SPECIAL	NONE
NON-PCB BALLASTS	SPECIAL	NONE
PCB OIL-FILLED BALLASTS	SPECIAL	NONE
PAINTS		
SPRAY PAINTS	HAZARDOUS	D001
LATEX PAINTS*	SPECIAL (check flashpoint)	NONE
ENAMEL PAINTS	HAZARDOUS	D001
EMPTY AEROSOL PAINT CANS <u>ONLY</u>	RECYCLABLE	Empty aerosol paint cans may be placed inside of the labeled paint bin located outside of X/Gallery Hi-Bay.
DAMAGED NOZZLE, NON-SPRAYABLE AEROSOL CANS WITH PETROLEUM LIQUID	HAZARDOUS	D001

* Latex paint and primer are most often non-hazardous waste; however, depending on when it was manufactured, it may contain constituents that make it hazardous. If you're not sure if it contains hazardous ingredients, check the label or read the SDS.

WASTE CHARACTERIZATION LIST

PESTICIDES		
EMPTY AEROSOL PESTICIDE CANS <u>ONLY</u>	RECYCLABLE	Empty pesticide aerosol cans may be placed inside of the labeled pesticide bin located outside of X/Gallery Hi-Bay.
ACIDS		
MANY SOLDER FLUXES	HAZARDOUS (CHECK pH)	D002
COPPERBRITE	HAZARDOUS	D002
CITRIC ACID	SPECIAL (CHECK pH)	NONE
RYDLYME (RID-LIME)	HAZARDOUS (CHECK pH)	D002
HYDROCHLORIC ACID	HAZARDOUS	D002
BATTERIES		
LEAD/ACID	UNIVERSAL	NONE
LEAKY LEAD ACID	HAZARDOUS	D002
RADIOACTIVE LEAD/ACID BATTERY	MIXED	D008
CARBON/ZINC	RECYCLABLE	NONE
ALKALINE	RECYCLABLE	NONE
LITHIUM	UNIVERSAL	NONE
NICKEL/CADMIUM	UNIVERSAL	NONE
NICKEL-METAL HYDRIDE	UNIVERSAL	NONE
SILVER	UNIVERSAL	NONE
GLYCOL		
USED GLYCOL (ETHYLENE AND PROPYLENE)	SPECIAL WASTE; however, a 50% solution of propylene glycol may be released to sanitary sewer provided it doesn't exceed 100 gallons per day.	NONE
RAGS CONTAMINATED WITH GLYCOL	REFUSE (no more than 1 ft ³ per dumpster)	NONE
OTHER		
MOST TWO-PART EPOXIES	SPECIAL	NONE
REACTED TWO-PART EPOXY	REFUSE	NONE
ASBESTOS-CONTAINING MATERIALS	SPECIAL	NONE
SELENIUM COATED METALS	SCRAP	NONE
MERCURY-CONTAINING MATERIALS (LAMP, SWITCH, THERMOSTAT, THERMOMETER)	UNIVERSAL	NONE
CYANIDE PLATING SOLUTION	HAZARDOUS	Check with Waste Coordinator

TABLE 4 - PROPER DISPOSAL OF CONTAMINATED WIPES AND RAGS

The disposal methods below are applicable only to rags and wipes that are non-radioactive, as determined with a frisker. Rags and wipes generated in a beam enclosure or through work on components that are potentially contaminated must be surveyed.

CONTAMINANT	CATEGORY/CONDITIONS	WASTE CODE
LEAD		
LEAD-CONTAMINATED	HAZARDOUS	D008
SOLVENTS		
MINERAL SPIRITS, ETHANOL, XYLENE, ACETONE, METHANOL	Hazardous All wipes and rags contaminated with the solvents at left may be commingled in a single container. They should be collected in a labeled clear bag and then placed inside of an approved container. Containers and bags are available through the Waste Coordinator. Disposal in the regular trash is PROHIBITED!	D001
MINERAL SPIRITS, ETHANOL	HAZARDOUS	D001
XYLENE, ACETONE, METHANOL	HAZARDOUS	F003
TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, METHYLENE CHLORIDE AND CHLORINATED FLUOROCARBONS; all spent halogenated solvents, mixtures/blends containing before use, a total of 10% or more (by volume) of one or more of the above halogenated solvents or solvents listed in F002, F004, and F005.	HAZARDOUS	IF OILY, F001; OTHERWISE F002
TOLUENE, METHYL ETHYL KETONE (MEK), ISOBUTANOL; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvent or those solvents listed in F001, F002, or F004.	HAZARDOUS	F005
OILS		
NON-PCB OILS	REFUSE Reminder: Only 1 ft ³ of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE
PCB		
PCB OILS	SPECIAL Contact the Waste Coordinator for assistance.	NONE
GLYCOLS		
ETHYLENE GLYCOL, PROPYLENE GLYCOL	REFUSE Reminder: Only 1 ft ³ of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE

TABLE 4 - PROPER DISPOSAL OF CONTAMINATED WIPES AND RAGS

The disposal methods below are applicable only to rags and wipes that are non-radioactive, as determined with a frisker. Rags and wipes generated in a beam enclosure or through work on components that are potentially contaminated must be surveyed.

CONTAMINANT	CATEGORY/CONDITIONS	WASTE CODE
LEAD		
LEAD-CONTAMINATED	HAZARDOUS	D008
SOLVENTS		
MINERAL SPIRITS, ETHANOL, XYLENE, ACETONE, METHANOL	Hazardous All wipes and rags contaminated with the solvents at left may be commingled in a single container. They should be collected in a labeled clear bag and then placed inside of an approved container. Containers and bags are available through the Waste Coordinator. Disposal in the regular trash is PROHIBITED!	D001
MINERAL SPIRITS, ETHANOL	HAZARDOUS	D001
XYLENE, ACETONE, METHANOL	HAZARDOUS	F003
TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, METHYLENE CHLORIDE AND CHLORINATED FLUOROCARBONS; all spent halogenated solvents, mixtures/blends containing before use, a total of 10% or more (by volume) of one or more of the above halogenated solvents or solvents listed in F002, F004, and F005.	HAZARDOUS	IF OILY, F001; OTHERWISE F002
TOLUENE, METHYL ETHYL KETONE (MEK), ISOBUTANOL; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvent or those solvents listed in F001, F002, or F004.	HAZARDOUS	F005
OILS		
NON-PCB OILS	REFUSE Reminder: Only 1 ft ³ of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE
PCB		
PCB OILS	SPECIAL Contact the Waste Coordinator for assistance.	NONE
GLYCOLS		
ETHYLENE GLYCOL, PROPYLENE GLYCOL	REFUSE Reminder: Only 1 ft ³ of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE

